

IN THE CLAIMS

Current Listing Of Claims:

We claim:

1. (Currently Amended) A process, comprising:
 providing a substrate;
 etching at least one trench into the substrate, the at least one trench having a pair of walls and a bottom;
 forming a first electrode within the trench over the pair of walls and the bottom; and
 forming a second electrode within the trench over the pair of walls and the bottom,
 wherein the second electrode is formed adjacent to but electrically separate from the first electrode.
2. (Original) The process of claim 1, wherein the first electrode is parallel to the second electrode.
3. (Currently amended) The process of claim 1, wherein the at least one trench has a length and a width and wherein the first electrode and the second electrode are at approximately a 90° angle to the length of the at least one trench.
4. (Original) The process of claim 1, further comprising forming an insulator liner layer above the semiconductor substrate before forming the first and second electrodes.

5. (Original) The process of claim 4, wherein forming an insulator liner layer comprises: depositing a silicon nitride layer;

depositing a polysilicon layer above the silicon nitride layer; and
oxidizing the polysilicon layer to form a silicon oxide layer.

6. (Original) The process of claim 1, wherein forming the first electrode and forming the second electrode comprises:

depositing a conductive layer within the at least one trench over the pair of walls and the bottom;

patterning a resist above the conductive layer; and
etching the conductive layer.

7. (Original) The process of claim 6, further comprising depositing a sacrificial light absorbing material comprising SLAM™ above the conductive layer before patterning the resist above the conductive layer.

8. (Original) The process of claim 1, wherein etching an at least one trench comprises etching a plurality of trenches and a plurality of rows of the plurality of trenches into the substrate.

9. (Original) The process of claim 1, wherein the substrate is a silicon die.

10. (Original) The process of claim 1, wherein the first electrode and the second electrode are platinum.

11. (Original) A process, comprising:

etching a plurality of parallel trenches into a silicon substrate, the trenches each having a contour of a pair of walls and a bottom;

forming an oxide liner layer along the contour of the trenches;

depositing a platinum film over the oxide liner layer along the contour of the trenches;

patterning the platinum film, wherein patterning the platinum film comprises depositing a sacrificial light absorbing material comprising SLAM™ above the platinum film, patterning a resist above the SLAM™, and etching the SLAM™ not covered by the resist; and

etching the platinum film with an isotropic etch to form a pair of electrodes over the contour of the trenches.

12. (Original) The process of claim 11, wherein trenches are separated by a distance in an approximate range of 5um to 50um.

13. (Original) The process of claim 11, wherein the plurality of parallel trenches each have a high aspect ratio of height to width in the approximate range of 10:1 and 100:1.

14. (Original) A process, comprising:

providing a trench having a pair of walls and a bottom, the trench having a first electrode formed within the trench over a portion of the pair of walls and the bottom of the trench and a second electrode formed within the trench over a portion of the pair of walls and the bottom of the trench, the second electrode separate from the first electrode by a distance; and

maximizing a flow rate of a liquid in the trench by increasing an electric field created by the first electrode and the second electrode across the trench by minimizing the distance between the first electrode and the second electrode.

15. (Original) The process of claim 14, wherein the flow rate is in the approximate range of 1 ml/s and 50 ml/s.

16. (Original) The process of claim 14, further comprising applying a voltage to the first electrode, and wherein the second electrode is grounded.

17-30 - Canceled.